Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_

**Unit 3 (Cell Structure and Transport), Notes Part 1 – Cell Theory**

Ms. OK, PreAP Biology, 2014-2015

**Check your Understanding:**

At the end of today’s lesson, you should be able to answer the following questions:

-Who were the 5 scientists that contributed to the cell theory and what were their contributions?

-What are the 3 parts of the cell theory?

-What are the types of microscopes and what does each type let us see?

-How are prokaryotic and eukaryotic cells different?

-How can a cell be “specialized?”

1. **Robert Hooke**used a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to look at a thin slice of \_\_\_\_\_\_\_\_\_\_, which is found in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Hooke called the tiny chambers he saw in the cork \_\_\_\_\_\_\_\_\_\_\_, which are the basic unit of\_\_\_\_\_\_\_\_\_.
3. **Anton van Leeuwenhoek** used a microscope to observe \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in \_\_\_\_\_\_\_\_\_\_ water.
4. **Matthias Schleiden** concluded that all \_\_\_\_\_\_\_ were made of cells.
5. **Theodore Schwaan** stated that all \_\_\_\_\_\_\_\_\_\_\_\_ were made of cells.
6. **Rudolph Virchow** concluded that new cells were created only from \_\_\_\_\_\_\_\_\_\_\_\_ of existing cells.
7. List the three parts of the cell theory

A.

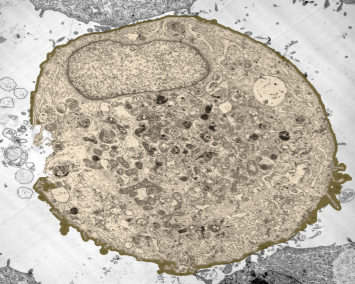
B.

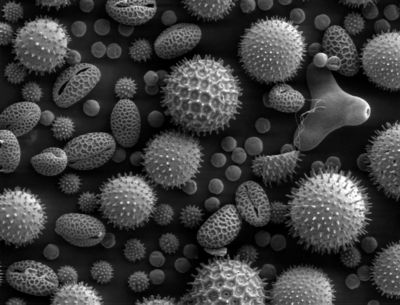
C.

8. Exploring the Cell:

A. **Electron microscopes** reveal details \_\_\_\_\_\_\_\_ times \_\_\_\_\_\_\_ than those visible in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

B. Electron microscopes can only be used to view \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells and tissues.

C. **Transmission Electron Microscopes (TEMs) –** used to study cell structures and large \_\_\_\_\_\_\_\_\_\_\_\_ molecules. Specimens must be cut into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ slices.

D. **Scanning Electron Microscope (SEMs)-** produce \_\_\_\_\_\_\_\_ images of cells. Specimens do not have to be cut into \_\_\_\_\_\_\_\_\_\_ slices

1. Prokaryotes vs. Eukaryotes
2. There are two types of cells: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. All cells are surrounded by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and contain \_\_\_\_\_\_\_\_\_\_\_\_.
4. Cells are classified into the two groups based on whether they contain a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. The **nucleus** is a large structure that contains the cell’s genetic material in the form of \_\_\_\_\_\_\_\_\_\_. It controls most of the cell’s activities.
6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are cells that contain nuclei.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are cells that do not contain nuclei.

1. Prokaryotes

-Prokaryotic cells have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ material that is not contained in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

-Prokaryotes do not have \_\_\_\_\_\_\_\_\_\_\_\_\_\_-bound organelles (cell parts surrounded by membranes)

-Prokaryotic cells are generally \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_ than eukaryotic cells.

-Example Organism: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Eukaryotes

-Contain a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in which their genetic material is separated from the rest of the cell.

-Contain cell parts called \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_ membranes.

-Eukaryotic cells are generally \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ than prokaryotic cells.

-Organelles (cell parts) carry out specific \_\_\_\_\_\_\_\_\_\_\_\_\_\_ for the cell.

-Many eukaryotic cells are highly \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Provide some examples of “specialized” cells in the space below.

1. For each cell picture, guess the cell type. After we have gone through the cells as a class, place the correct answer in the space below your guess.

Cell Type Options: Plant cell, nerve cell, skin cell, sperm cell, bone cell, bacterium, blood cell, muscle cell.

**#1:** Guess\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **#2:** Guess\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Correct Answer\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Correct Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**#3:** Guess\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **#4:** Guess \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Correct Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Correct Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**#5:** Guess\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **#6:**  Guess \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Correct Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Correct Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. The 3 ways that cells are different from each other are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.